National Institute of Environmental Health Sciences

Selection of climate change scenario data for impact modelling

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Abstract:

Impact models investigating climate change effects on food safety often need detailed climate data. The aim of this study was to select climate change projection data for selected crop phenology and mycotoxin impact models. Using the ENSEMBLES database of climate model output, this study illustrates how the projected climate change signal of important variables as temperature, precipitation and relative humidity depends on the choice of the climate model. Using climate change projections from at least two different climate models is recommended to account for model uncertainty. To make the climate projections suitable for impact analysis at the local scale a weather generator approach was adopted. As the weather generator did not treat all the necessary variables, an ad-hoc statistical method was developed to synthesise realistic values of missing variables. The method is presented in this paper, applied to relative humidity, but it could be adopted to other variables if needed.

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Resource Description

Climate Scenario :

specification of climate scenario (set of assumptions about future states related to climate)

Special Report on Emissions Scenarios (SRES), Other Climate Scenario

Special Report on Emissions Scenarios (SRES) Scenario: SRES A1

Other Climate Scenario: A1B

Exposure :

weather or climate related pathway by which climate change affects health

Food/Water Quality

Food/Water Quality: Biotoxin/Algal Bloom

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location: ☑

resource focuses on specific location

☐ Global or Unspecified

Health Impact: ☑

specification of health effect or disease related to climate change exposure

☐ Other Health Impact

Other Health Impact: mycotoxins

Model/Methodology: ☑

type of model used or methodology development is a focus of resource

☐ Exposure Change Prediction

Resource Type: ☑

format or standard characteristic of resource

☐ Research Article

Timescale: ☑

time period studied

☐ Long-Term (>50 years)

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

☐ A focus of content